

Application Serial No. 10/666,674
Reply to Office Action of March 11, 2005

PATENT
Docket: CU-3362

REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

Applicant thanks the Examiner for her remarks in the Advisory Action of May 26, 2005 made in response to the Amendment After Final filed May 19, 2005. In this amendment, Claim 1 has been further amended to address all issues raised by the Examiner.

I. REMARKS IN RESPONSE TO THE FINAL OFFICE ACTION OF MARCH 11, 2005

Claims 1-3 and 15 are pending in the present application before this amendment. By the present amendment, Claims 1-2 have been amended. No new matter has been added.

In response to the rejection of Claim 2 under 35 U.S.C. § 112, ¶2, Claim 2 has been amended to recite: --while controlling the temperature of the organic EL material for discharge--. It is respectfully submitted that this amendment is considered to overcome the rejection, and an indication thereof is respectfully requested.

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being obvious over a PCT Reference WO 98/24271 (Miyashita where U.S. Patent Application Publication No. 2003/0054186 was used as a translation by the Examiner) in view of U.S. Patent Application Publication No. 2002/0127344 (Pham). The "et al." suffix, which may appear after a reference name, is omitted in this paper.

As Applicant has already asserted in the previously filed amendment, the presently claimed invention is directed to a method for manufacturing an organic EL display by discharging--not necessarily limited to spraying--an ink, which is a liquid solution, on a heated substrate by an ink jet method. The discharged ink is heated

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immediately, since the ink is discharged on the substrate being heated, thereby flattening the obtained layer.

Neither the cited Miyashita nor Pham reference (whether considered individually or in combination) teaches or suggests every limitation of Claim 1, as amended.

As to Miyashita, Applicant respectfully agrees with the Examiner that Miyashita does not teach, inter alia, the method of forcibly drying the deposited liquid organic EL material by the heat of the heated substrate.

However, Applicant respectfully disagrees with the assertion that Pham shows the novel method of forcible drying as claimed in Claim 1 of the present application.

Applicant respectfully refers to Pham [0023], in which Pham teaches (1) spraying the solvent to a substrate in the form of mist; and (2) drying the deposited mist by one of the following two methods:

- (A) Allowing the sprayed solvent to evaporate at a room temperature; or
- (B) "slightly" heating the substrate to dry the deposited mist to "accelerate" the evaporation while the "temperature should **never exceed** the evaporation or decomposition temperature" of the solution.

Therefore, Pham at best teaches "slightly" heating the substrate just to a point where the evaporation process will be assisted. Pham specifically teaches against and against heating the substrate where **the heat generated from the heated substrate is capable of causing immediate evaporation of the discharged organic EL material**— as recited in Claim 1.

As clearly described (and recited in Claims 1-2) in the present application, the heat from the heated substrate is sufficiently hot to evaporate not only the discharged

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solution but also the liquid solution not-yet-discharged, unless a cooling mechanism is provided to cool down the not-yet-discharged liquid solution to maintain the liquid state.

Nowhere in Pham teaches such claimed forcible drying method that is —capable of causing immediate evaporation of the discharged organic EL material while preventing the discharged organic EL material from being air-dried through natural evaporation—. In contradistinction, Pham specifically teaches the air-drying technique through natural evaporation, and "slight" heating of the substrate **only** to assist or accelerate such a natural evaporation process.

Therefore, even if Pham is combined with Miyashita, not every claimed limitation of Claim 1 is taught or suggested. At least on this ground alone, Applicant respectfully submits that Claim 1, as amended, is considered to have overcome the standing rejection. Accordingly withdrawal of the rejection and an indication of allowable subject matter are respectfully requested.

It is well founded in the patent case law and consistently in MPEP that the Examiner bears the **initial** burden of **factually** supporting any prima facie conclusion of obviousness. MPEP §2142. There are three requirements to establish the prima facie obviousness. MPEP §2143.

- (1) First, the prior art references **must** teach or suggest **all** the claim limitations. MPEP §2143.03.
- (2) Second, there must be some suggestion or motivation, either **in the references themselves** or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP §2143.01.
- (3) Third, there must be a **reasonable expectation of success**. MPEP §2143.02.

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According to MPEP §2143.01, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to combine the reference teaching.

The suggestion or motivation to combine references must come from the cited prior art references, either explicitly or implicitly. The mere fact that the teachings of the prior art can be modified or combined does **not** establish a motivation or suggestion to combine and make the resultant combination prima facie obvious. **The prior art must suggest the desirability of the combination.** MPEP §2143.01.

The Office Action combines the Miyashita and Pham to reject Claim 1; however, these references do not suggest the desirability of the combination.

As already discussed and conceded by the Examiner, Miyashita lacks any teachings or suggestion directed to, inter alia, the claimed method of forcible drying through a heated substrate.

Further, Pham is directed to a low cost method of manufacturing thick or thin films. Pham is **not** at all concerned with drying discharged **liquid**—not to be confused with sprayed "mist"—in such a manner that the problems such as a meniscus shaped or uneven layer is sufficiently prevented after drying. Since Pham is not concerned with the problems solved by the presently claimed invention, Pham teaches spraying mists (not discharging liquid) and air-drying through natural evaporation (with or without a "slighted" heated substrate that is never heated higher than the evaporation temperature).

Therefore, Pham lacks the sufficient motivation for combinability with other

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references, such as Miyashita. The teachings of Pham are not reasonably pertinent to the problem addressed by the presently claimed invention to provide sufficient grounds of combinability. MPEP §2141.01(a); In re Wood, 599 F.2d 1032 (CCPA 1979).

The Applicants respectfully submit that the conclusive statement of obviousness in the Office Action that the heated layer of Pham can be applied in the context of forcible drying as disclosed and claimed in the present application is based on an impermissible presumption. Applicant's response to such a conclusive statement of obviousness is that the basis for improperly finding the presently claimed invention obvious appears to be the teaching found in this application, and not in the prior art. Thus, the obviousness rejection in the Office Action improperly relies on the **impermissible hindsight reasoning**, because the rejection would not be obvious absent Applicants' disclosure in this application that discloses the heated substrate. (See 37 C.F.R. § 1.104(c)(2).)

According to MPEP §2142, the hindsight reasoning based on Applicants' own disclosure is not permitted. Knowledge of Applicants' disclosure must be set aside. The Examiner must step back in time to when the invention was unknown and just before it was made. Only the fact gleaned from the prior art may be used.

It is emphasized again that according to MPEP it is only the teachings of the prior art, which must be combinable to establish the prima facie obviousness. Pham provides no teaching at all that (1) a liquid solution is discharged and that (2) its slighted heated substrate can in fact cause immediate evaporation even if a liquid solution were assumed to have been discharged. In absence of these teachings in Pham, the Examiner's conclusion to the contrary based on Pham's slightly "heated substrate" is

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based on (1) the impermissible hindsight reasoning based Applicants' disclosure itself and (2) the incorrect reasoning that Pham is analogous and/or reasonably pertinent to the teachings or problems solved by the presently claimed invention.

II. REMARKS IN RESPONSE TO THE ADVISORY ACTION OF MAY 26, 2005

Applicant expresses thanks for the Examiner's comments in the Advisory Action dated May 26, 2005 regarding the Amendment After Final filed May 19, 2005. In response, Applicant provides the following remarks.

Claims 1 and 2 have been further amended.

As to Claim 1, it further recites: --a heated substrate hot enough to evaporate the liquid organic EL material discharged on the heated substrate and the liquid organic EL material present in the nozzle not yet discharged--; and

As to Claim 2, the limitation of --cooling with a cooling mechanism placed on the nozzle-- is retained.

Applicant again asserts that no cited references including Pham (in combination or individually) teaches or suggests Claim 1. In particular, Applicant notes again that Pham teaches **against** this claimed subject matter that is so hot to evaporate the not yet discharged liquid in the nozzle as well as the already discharged liquid on the substrate:

"Spraying can be done using a **slightly** heated substrate in order to **accelerate** the evaporation. The temperature should **never** exceed the evaporation or decomposition temperature of the organic binder or plasticizers. ... Typical solvent can be ethanol or methanol, for which **typical process temperature is below 60-70° C.**" (Pham page 2, paragraph [0023])

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Slightly heating the substrate in order to accelerate **cannot** teach or suggest: –
wherein the discharged organic EL material is forcibly dried immediately after the
discharge from the nozzle by the heat of the heated substrate while preventing the
discharged organic EL material from being air-dried through evaporation–. (Claim 1
now recites –air-dried through evaporation– in response to the Examiner's comments
that the term "natural evaporation" is unclear.)

Applicant respectfully acknowledges the Examiner's comments in the Advisory
Action page 2, bottom that "Pham was merely cited to support the statement that 'it is
extremely well known in the art of solution coating that the drying of layer may be
accelerated by heating the substrate." However, whether or not acceleration of drying
is widely known, this is irrelevant in analyzing the presently claimed invention, because
the presently claimed invention is **not** merely about accelerating the "evaporation"
drying process through a slightly heated substrate as Pham discloses.

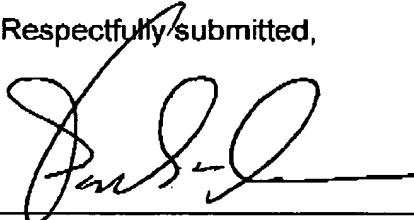
For the reasons set forth above, Applicant respectfully submits that Claims 1-3
and 15, now pending in this application, are in condition for allowance over the cited
references. Accordingly, Applicant respectfully requests reconsideration and withdrawal
of the outstanding rejections and earnestly solicits an Indication of allowable subject
matter. In the event issuance of a Notice of Allowance is proper, the Examiner is
authorized to cancel the withdrawn claims by way of an examiner's amendment.

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This amendment is considered to be responsive to all points raised in the Office Action. Should the Examiner have any remaining questions or concerns, the Examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,



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